School of Computing Science and Engineering
Course Name: Introduction to Digital Systems
Course Code: BEE01T1005

Unit II Question Bank

1. Explain SOP and POS form
2. Define Pair, Quad, and Octet
3. What are called don't care conditions?
4. What is meant by karnaugh map or K-Map method?
5. Define combinational logic.
6. Define Half adder and full adder
7. What is Decoder and Encoder?
8. Explain Applications of Multiplexer
9. Simplify the Boolean expression using K-MAP
   F(A,B,C,D) = Σm(1,2,3,8,9,10,11,14) +d(7,15)
10. Obtain the a) SOP b) POS expression for the function given below
    F(A,B,C,D)= = Σm(0,1,2,5,8,9,10)
11. Reduce the expression f(x,y,z,w)= πM(0,2,7,8,9,10,11,15) .d (3,4) using K-Map?
12. Simplify the Boolean expression using K-map and implement combinational circuit
    F(A,B,C,D) = Σm(0,2,3,8,10,11,12,14)
13. Obtain the Complement of Boolean Expression
    i) A+B+A'B'C
    ii) AB + A (B +C) + B'(B+C)
14. Simplify the Boolean expressions to minimum number of literals
    i) X' + XY + X Z' + XYZ'
    ii) XY + (XZ)' + XY'Z (XY + Z)
15. Simplify the Boolean expressions to minimum number of literals
    i) (A + B)(A + C')(B' + C')
    ii) AB + (AC)' + AB'C (AB + C)
    iii) (A+B)' (A'+B')'
16. Reduce using mapping the expression Summation of Minterms (0, 1, 2, 3, 5, 7, 8, 9, 10, 12, 13) and implement it in universal logic.
17. Determine the minimal sum of product form of
    i) f(w,x,y,z)=Σm(4,5,7,12,14,15) +d(3,8,10)
    ii) F(A,B,C,D)=πM(0,3,5,6,8,12,15)
18. Explain and design the circuit diagram of about Full Adder?
19. Explain about 1-bit Magnitude Comparator?
20. Design and explain Half binary adder in Detail.
21. What is Multiplexer? Design and explain the circuit diagram of 4 X 1 Multiplexer
22. Design and explain the combinational circuit of Full Subtractor
23. Define the truth table and Boolean function of of Encoder.
24. Explain Half binary subtractor in detail.
25. Difference between encoder and decoder.
26. Design a 2 bit adder-subtractor circuit
27. Explain - BCD Adder with neat sketches
28. Implement the following Boolean function using combinational circuit
    F(A,B,C.D) = Σm (0,1,2,5,7,8,9,14,15)